

# HMMWV ROLLOVER PREVENTION AND SURVIVAL



**HMMWV Rollovers are the number one killer of Soldiers in theater after combat actions and IEDs**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

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## **TERMINAL LEARNING OBJECTIVE**

**ACTION** – Prevent a HMMWV Rollover

**CONDITIONS** - In a classroom, provided instruction on preventive and reactive measures, crewman duties and emergency steps to take in case of a HMMWV rollover

**STANDARD** – The student properly identifies precautionary and reactive measures to take in case of a HMMWV rollover by answering the check-on-learning questions with a minimum of 80%.

## OIF/OEF STATISTICS

- **History: 288 HMMWV Rollovers have occurred OIF/OEF causing 82 Fatalities**



## **UNDERSTANDING THE CAUSE**

### **Causes:**

- **Speed (driving too fast for conditions)**
- **Overly Aggressive Driving (jerking wheel)**
- **Unfamiliar Terrain**
- **Inadequate driver/crew training**
- **High Center-of-Gravity/Vehicle Payload**
- **Bad Road Surface conditions**
- **Interference from local population**
- **Operating near bodies of water**
- **Explosives detonation**



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**SPEED**

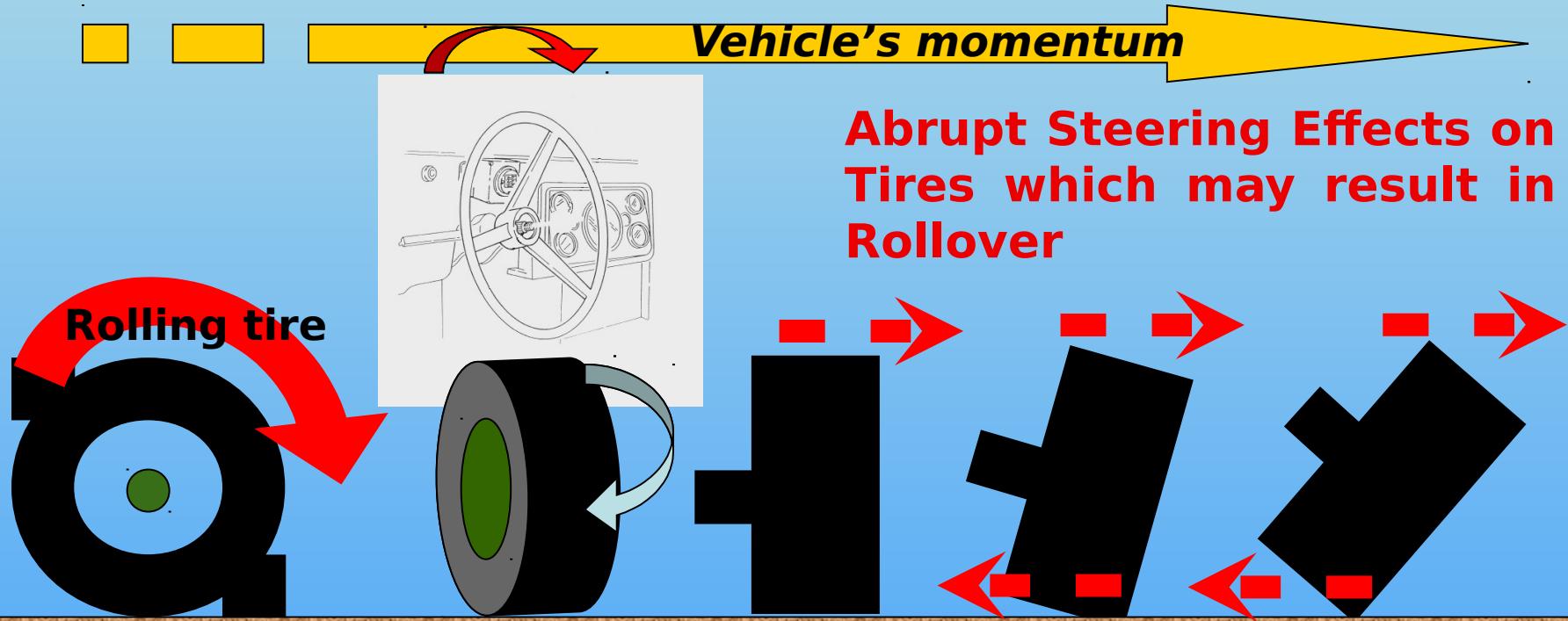
**“TRAINING  
REDUCES  
PANIC!”**



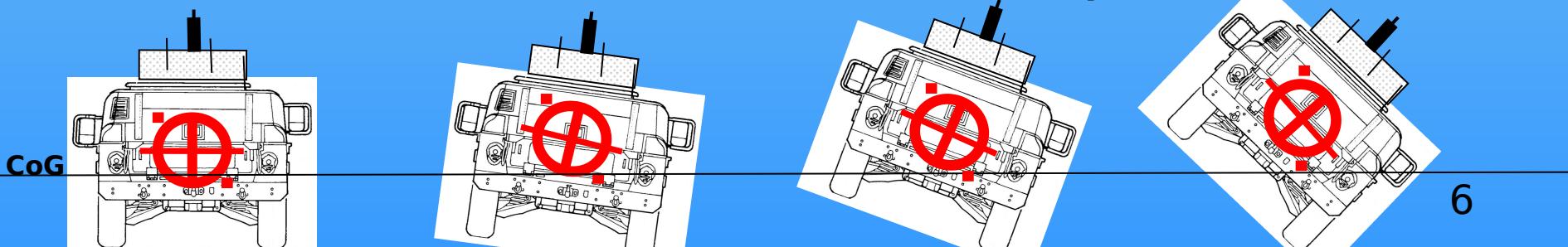
**“EXPERIENCE  
PREVENTS  
ROLLOVERS!”**

# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## OVERLY AGGRESSIVE DRIVING



The momentum of the Center of Gravity pulls the vehicle over



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## **ROAD AND TERRAIN CONDITIONS**



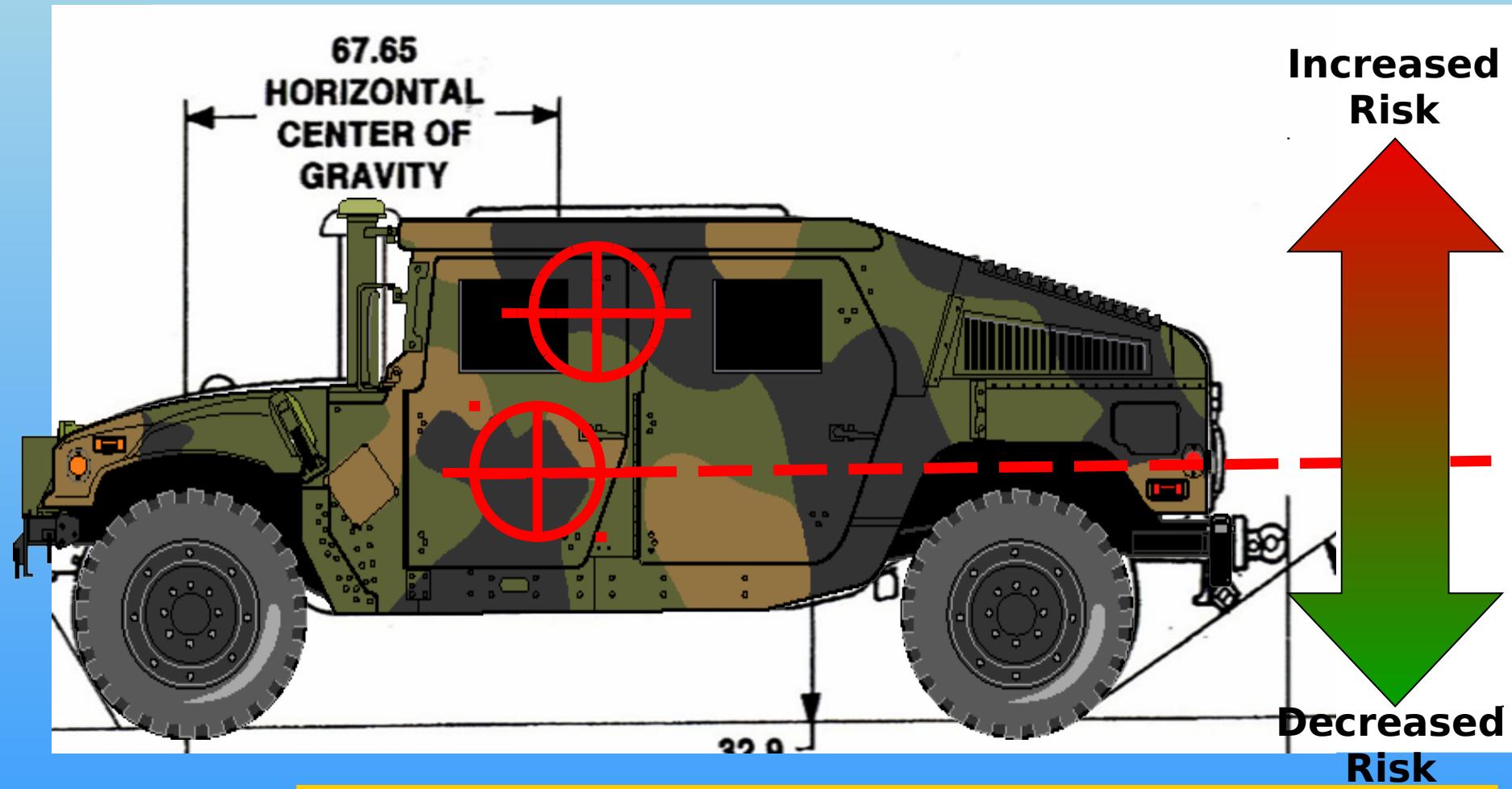
The HMMWV is designed to climb obstacles not push them. This characteristic has caused some vehicle rollovers. Gunner should be mindful and react quickly to duck into vehicle.

## **INADEQUATE DRIVER TRAINING**



# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## CENTER OF GRAVITY



**The Higher the CoG, the Higher the Risk**

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## VEHICLE PAYLOADS

M1114 Limits  
Payload = **2300** lbs  
or **1043** kg

- Crew
- Winch
- Gunner's Prot Kit
- Spare Tire
- Weapons
- All cargo

**Secure  
ALL  
items!**

**Don't overload the vehicle**



# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## **BAD ROAD SURFACE CONDITIONS**



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## INTERFERENCE FROM LOCAL POPULATION



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## **WATER PRECAUTIONS**

**When in the vicinity of water** and tactical conditions permit:

- Reduce speed and stop vehicle
- Inform crewmembers that you are operating around potential water hazards
- Make a Risk Assessment of the terrain and route before proceeding
- Maintain orientation by wearing seatbelts and
- Unlock combat door locks



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## **EXPLOSIVES DETONATION**



## **TEAMWORK**

- **Work as a Team**
- **Maintain crew integrity**
- **Enforce use of seat belts**
- **Communicate with each other**
- **Identify terrain or conditions for a rollover**
- **Use a ground guide near bodies of water**
- **Team member positioning within the vehicle**
- **Field of views / sectors**



## **QUICK STEPS FOR EMINANT ROLLOVER**

- **ALL - Yell “ROLLOVER, ROLLOVER, ROLLOVER!!”**
- **ALL - Brace against inside structure of vehicle**
- **Driver/TC/PAX - Brace against floorboard**
- **Driver/TC/PAX - Tuck chin into chest**
- **Gunner - Forcefully duck down into gunner cupola**
- **ALL - Attempt to grasp gunner to pull inside vehicle**

## **ACTIONS DURING A ROLLOVER**

- **Driver - Continue to navigate the vehicle as long as control is possible.**
- **ALL - Brace chin down against chest. Keep it there.**
- **DRIVER/PAX/TC - Brace against floorboard and inside vehicle structure.**
- **Attempt to maintain coherent orientation during roll.**
- **GUNNER - MUST drop down inside of gunners' seat as quickly as possible.**
- **Driver/PAX/TC - Attempt to grab and hold gunner into vehicle.**

[PLAY VIDEO \(12:15\)](#)

## **ACTIONS AFTER A ROLLOVER**

- **ALL - Unplug headset**
- **Release seat belt (use caution, you may be suspended)**
- **Assess injuries**
- **Unlock combat doors**
- **Exit vehicle w/weapon by quickest route**
- **Assist other crewmembers to exit vehicle**
- **Provide security (keep at safe distance)**
- **Recover sensitive items**
- **Assist in vehicle recovery**
- **TC - REPORT accident**

## **Additional steps for WATER EGRESS**

- **Remove LBE, body armor, helmet**
- **Evacuate by shortest route**
- **Rescue others immediately!**
- **Provide FIRST AID and SUMMON MEDICAL AID**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **Check on Learning**

1 - What is the best way to survive a rollover?

**WEAR SEAT BELTS!**

2 - Who in the crew is the most likely to be killed?

**GUNNER**

3 - What promotes a rollover to occur?

**SPEED**

4 - What additional precaution should the vehicle crew take when operating near water?

**UNLOCK COMBAT DOOR LOCKS**

5 - The higher the Center of Gravity the higher the

**RISK**

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# HMMWV ROLLOVER PREVENTION AND SURVIVAL

**SURVIVE the  
Rollover!**



# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## Training Resources

TC 21-305

### TRAINING PROGRAM FOR WHEELED VEHICLE ACCIDENT AVOIDANCE

GTA 55-03-030  
For Official Use Only  
HMMWV UPARMORED  
Emergency Procedures  
Performance Measures

#### WARNING

Never attempt to jump from a rolling vehicle. It may roll over you. Ensure that the vehicle has stopped rolling before exiting the crew compartment.

20 May 05

#### ROLLOVER DRILL (CONT):

- Crew --**
  - Yells, "Rollover!"
  - Pulls Gunner into cab
  - Tucks head and chin into chest and braces for impact.
  - Plants feet firmly on the floor while holding onto a stationary object.

#### 2. After the rollover has stopped:

- Driver--**
  - Disconnects headrest.
  - Wears seat belt, uses caution if possible.
  - Unlocks combat door locks.
  - Exits the vehicle with weapon.
  - Assists crew to exit.
  - Checks for fire.
  - Provides security.
  - Provides first aid.
  - Receives sensitive items.
  - Assists in vehicle recovery.

#### 3. After the rollover has stopped:

- Gunner--**
  - Disconnects headrest.
  - Wears seat belt, uses caution if possible.
  - Unlocks combat door locks.
  - Exits vehicle with weapon.
  - Assists crew to exit.
  - Establishes security.
  - Receives sensitive items.
  - Provides first aid.
  - Assists in vehicle recovery.

#### 4. After the rollover has stopped:

- Crew --**
  - Disconnects headrest.
  - Wears seat belt, uses caution if possible.
  - Unlocks combat door locks.
  - Exits vehicle with weapon.
  - Assists crew to exit.
  - Establishes security.
  - Receives sensitive items.
  - Provides first aid.
  - Assists in vehicle recovery.

#### ROLLOVER DRILL (CONT):

- b. Vehicle Commander--**
  - Disconnects headrest.
  - Releases seatbelt, uses caution if possible.
  - Wears seat belt.
  - Assists crew to exit.
  - Unlocks combat door locks.
  - Exits vehicle with weapon.
  - Assists crew to exit.
  - Provides security.
  - Provides first aid.
  - Assists in vehicle recovery.

#### 5. After the rollover has stopped:

- c. Gunner--**
  - Disconnects headrest.
  - Wears seat belt, uses caution if possible.
  - Unlocks combat door locks.
  - Exits vehicle with weapon.
  - Assists crew to exit.
  - Establishes security.
  - Receives sensitive items.
  - Provides first aid.
  - Assists in vehicle recovery.

#### 6. After the rollover has stopped:

- d. Crew--**
  - Disconnects headrest.
  - Releases seatbelt, uses caution if possible.
  - Wears seat belt.
  - Assists crew to exit.
  - Establishes security.
  - Receives sensitive items.
  - Provides first aid.
  - Assists in vehicle recovery.

#### PREVENTIVE MEASURES:

**Slow Down.** Watch for Sharp Curves and Steep Inclines. Curves and slopes generate centrifugal forces that act sideways on the vehicle, increasing the chance of rollovers.

**Avoid panic-don't jerk the steering wheel.**

Many rollovers occur when the driver panics.

Always drive slowly during emergency situations.

Always use proper technique when driving a vehicle.

Know proper maneuvering. If you drive off the road, get back onto the roadway at a safe speed.

Use caution on rural roadways with soft embankments. When a vehicle goes off or near a embankment, it is tipped by soft soil or embankment.

Pay attention to vehicle condition, tire pressure and loading.

Pay particular attention to tire condition and air pressure.

Improper tire pressure increases your risk of rollover.

Don't overload the vehicle. The M114 payload is 3000 lbs.

This includes the passengers, weapon, and gunner's protective kit, spare tire, weapons, and all cargo.

Keep the Vehicle Center of Gravity Low. Load heavier items low in the vehicle.

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